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Clinical THYROIDOLOGY FOR THE PUBLIC

VOLUME 8 • ISSUE 1 • 2015

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Carlé A et al. Hypothyroid symptoms and the likelihood of overt thyroid failure: a population-based case-control study. *Eur J Endocrinol* 2014;171:593-602.

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Robertson HMA et al. Factors contributing to high levothyroxine doses in primary hypothyroidism; an interventional audit of a large community database. *Thyroid*, September 9, 2014 [Epub ahead of print].

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Overt hypothyroidism occurring in the mother and not adequately treated during pregnancy is associated with developmental delay and other brain issues in the baby. Despite this, universal screening for thyroid disease in pregnancy is controversial. This study examined how often pregnant women without risk factors or symptoms of thyroid disease were found to have overt hypothyroidism on blood test screening in early pregnancy.

Pop V et al. The attitude toward hypothyroidism during early gestation: time for a change of mind? *Thyroid*. 2014 Oct;24(10):1541-6. doi: 10.1089/thy.2014.0007. Epub 2014 Aug 7.

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Next-generation sequencing molecular marker assay results in accurate diagnosis of cancer in thyroid nodules with indeterminate thyroid biopsy results

Thyroid nodules are common. While ~10-15% of biopsy results are indeterminate, testing for molecular markers may help determine which patients are more likely to require surgery. This study assessed a next generation molecular marker assay in biopsy samples classified as follicular neoplasm or suspicious for follicular neoplasm.

Nikiforov YE et al. Highly accurate diagnosis of cancer in thyroid nodules with follicular neoplasm/suspicious for a follicular neoplasm cytology by ThyroSeq v2 next-generation sequencing assay. *Cancer*. September 10, 2014 [Epub ahead of print].

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Adequate surgery for low-risk papillary thyroid cancer—the debate rages on.

The initial treatment for thyroid cancer is surgery, usually a total thyroidectomy. Recent reports have questioned the need for total thyroidectomy for cancers smaller than 4 cm. This study examined the risk of survival in patients with small thyroid cancers that were treated total thyroidectomy vs lobectomy.

Adam MA et al. Extent of surgery for papillary thyroid cancer is not associated with survival: an analysis of 61,775 patients. *Ann Surg* 2014;260:601-7.

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Clinical Thyroidology for the Public

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CLINICAL THYROIDOLOGY **FOR THE PUBLIC**

A publication of the American Thyroid Association

VOLUME 8 • ISSUE 1 • 2015

EDITOR'S COMMENTS

Happy New Year! Welcome to another year of *Clinical Thyroidology for the Public*. In this journal, we will bring to you the most up-to-date, cutting edge thyroid research. We will be providing summaries of research studies that were discussed in a recent issue of *Clinical Thyroidology*, a publication of the American Thyroid Association for physicians. These summaries are present in lay language to allow the rapid dissemination of thyroid research to the widest possible audience. This means that you are getting the latest information on thyroid research and treatment almost as soon as your physicians. As always, we are happy to entertain any suggestions to improve *Clinical Thyroidology for the Public* so let us know what you want to see.

We also provide even faster updates of late-breaking thyroid news through **Twitter** at [@thyroidfriends](https://twitter.com/thyroidfriends) and on **Facebook**. Our goal is to provide patients with the tools to be the most informed thyroid patient in the waiting room.

Also check out our friends in the **Alliance for Thyroid Patient Education**. The Alliance member groups consist of: the *American Thyroid Association*, *Bite Me Cancer*, the *Graves' Disease and Thyroid Foundation*, the *Light of Life Foundation*, *ThyCa: Thyroid Cancer Survivors Association*, *Thyroid Cancer Canada* and *Thyroid Federation International*.

January is **Thyroid Awareness** month.

In this issue, the studies ask the following questions:

1. Are there any symptoms that are specific to hypothyroidism?
2. Why do some hypothyroid patients require high doses of levothyroxine?
3. How often does screening detect overt hypothyroidism during pregnancy?
4. How accurate are the next generation molecular marker assays in diagnosing cancer on thyroid biopsy samples?
5. Total thyroidectomy vs lobectomy – what is the best surgery for low risk thyroid cancer?

We welcome your feedback and suggestions. Let us know what you want to see in this publication. I hope you find these summaries interesting and informative.

— Alan P. Farwell, MD



HYPOTHYROIDISM

There is substantial overlap between the symptoms of patients with hypothyroidism and those with normal thyroid function

BACKGROUND

Hypothyroidism is a common medical problem. Since thyroid hormone affects the entire body, hypothyroidism can result in a variety of symptoms. However, hypothyroid symptoms are non-specific and they can also be seen in patients with normal thyroid function. Because of this overlap, it is sometimes difficult to determine if thyroid hormone treatment is needed in patients who only have an elevated TSH level. In general, patients with overt hypothyroidism who have both an increased TSH level and a decreased T_4 level are more symptomatic and the diagnosis is clearer. However, even these patients may develop only a few hypothyroid symptoms or they may be asymptomatic, especially in early stages of disease. The aim of this study was to evaluate the relative frequency and importance of different symptoms in patients with newly diagnosed overt hypothyroidism and matched individuals without thyroid disease.

THE FULL ARTICLE TITLE

Carlé A et al. Hypothyroid symptoms and the likelihood of overt thyroid failure: a population-based case-control study. *Eur J Endocrinol* 2014;171:593-602.

SUMMARY OF THE STUDY

This study included 140 patients newly diagnosed with overt hypothyroidism (elevated TSH and low T_4 levels) between March 1997 and December 2000 based on a registry linked to all laboratory databases from two cities in Denmark, Aalborg and Copenhagen. The diagnosis was confirmed by reviewing the patients' medical records. A total of 560 age-, sex-, and region-matched individuals with normal thyroid function and no history of thyroid disease were recruited from the population of the two cities for this study. The average TSH of the 140 hypothyroid patients was 54.5 mIU/L, while the average TSH of the controls was 1.24 mIU/L. The majority of the hypothyroid patients (95.7%) and 18.8% of those without thyroid disease had a positive TPO antibody test, which is the hallmark of autoimmune thyroid disease. All participants completed a questionnaire regarding their symptoms. A total of 13 symptoms were found to be associated with

hypothyroidism: fatigue (81% of patients), dry skin (63%), shortness of breath (51%), mood lability (46%), constipation (39%), globus sensation (36%), palpitations (35%), restlessness (33%), hair loss (30%), difficulty swallowing (29%), wheezing (27%), vertigo (24%), and anterior neck pain (16%). A total of 5.7% of the hypothyroid patients reported having no symptoms, while 70% of controls had at least one symptom associated with hypothyroidism. The hypothyroid patients reported having an average of 5 symptoms, while those without thyroid disease reported an average of two symptoms. The subjects reporting three symptoms had the same probability of being hypothyroid or euthyroid, while the subjects reporting more than three symptoms had a higher probability than average of being hypothyroid. No association was found between the number and type of symptoms and serum TSH, T_3 , or T_4 levels in the hypothyroid patients. Cold intolerance, a symptom reported in hypothyroid patients, was not evaluated in this study.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This is the first population based study confirming that hypothyroid patients can present with a variety of symptoms, which can also be seen in patients with normal thyroid function. Thyroid function tests should always be measured when there is a clinical suspicion in order to diagnose hypothyroidism. In this study, almost 6% of the overtly hypothyroid patients were free of symptoms. Therefore, by screening only symptomatic patients, we can miss a significant proportion of hypothyroid patients. The American Thyroid Association recommends a screening TSH every 5 years in all adults starting at 35 years of age.

— Alina Gavrila, MD, MMSC

ATA THYROID BROCHURE LINKS

Hypothyroidism: <http://www.thyroid.org/what-is-hypothyroidism>

Thyroid Function Tests: <http://www.thyroid.org/blood-test-for-thyroid>



HYPOTHYROIDISM, continued

ABBREVIATIONS & DEFINITIONS

Euthyroid: a condition where the thyroid gland is working normally and producing normal levels of thyroid hormone.

Hypothyroidism: a condition where the thyroid gland is underactive and doesn't produce enough thyroid hormone. Treatment requires taking thyroid hormone pills.

Overt Hypothyroidism: clear hypothyroidism with an increased TSH and a decreased T_4 level. All patients with overt hypothyroidism are usually treated with thyroid hormone pills.

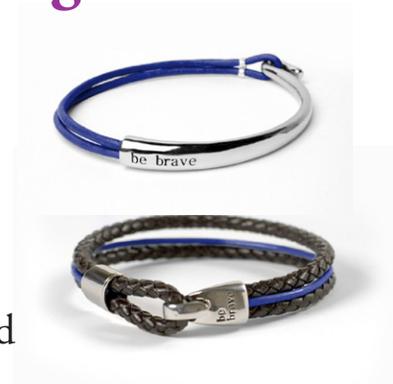
TSH: thyroid stimulating hormone — produced by the pituitary gland that regulates thyroid function; also the best screening test to determine if the thyroid is functioning normally.

Thyroxine (T_4): the major hormone produced by the thyroid gland. T_4 gets converted to the active hormone T_3 in various tissues in the body.

TPO antibodies: these are antibodies that attack the thyroid instead of bacteria and viruses, they are a marker for autoimmune thyroid disease, which is the main underlying cause for hypothyroidism and hyperthyroidism in the United States.

Thyroid Awareness Monthly Campaigns

The ATA will be highlighting a distinct thyroid disorder each month and a portion of the sales for Bravelets™ will be donated to the ATA. The month of January is **Thyroid Awareness month** and a bracelet is available through the [ATA Marketplace](#) to support thyroid cancer awareness and education related to thyroid disease.





HYPOTHYROIDISM

Although 99% of patients are well treated, several factors contribute to high levothyroxine doses in primary hypothyroidism

BACKGROUND

Hypothyroidism, or an underactive thyroid, is a very common condition worldwide. Treatment of hypothyroidism is based on replacing thyroid hormone in the form levothyroxine, which is the main thyroid hormone secreted by the thyroid gland. While body weight may influence the dose to some degree, the average replacement dose of levothyroxine to return the TSH back to normal is in the 100–125 mcg range. Occasionally, some patients present a challenge because they seem to require unusually high doses of levothyroxine. This study sought to identify factors that may contribute to those high requirements and to evaluate changes in dose after two years of follow up and intervention to correct those issues.

THE FULL ARTICLE TITLE

Robertson HMA et al. Factors contributing to high levothyroxine doses in primary hypothyroidism; an interventional audit of a large community database. *Thyroid*, September 9, 2014 [Epub ahead of print].

SUMMARY OF THE STUDY

This study used a community-based register from an area of Scotland that includes 17,500 patients. Of these, 190 patients (1%) were found to be taking more than 225 mcgs of levothyroxine daily. A total of 125 patients returned their questionnaires and their doctors then evaluated them to determine whether they had conditions that could be contributing to the high dose of levothyroxine they required.

In approximately 2/3rd of patients, there was an apparent reason to the high dose requirements, such as celiac disease, autoimmune gastritis, taking other medications

that interfere with the absorption of levothyroxine (iron, calcium supplements for example) or simply missing doses on a regular basis. These patients were given information about the possible reason for the high doses and, if needed, were sent to another specialist such a gastroenterologist to help in evaluating the absorption problems. In the remaining 1/3rd of patients, no obvious reason for the high doses was identified.

After 2 years, it was seen that there was a decline in doses needed in the patients in whom an absorption problem had been identified, but it was not similar or consistent in all the patients. In contrast, the patients who frequently missed doses, had a minimal change in their dose.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study is reassuring because it shows that only a small (1%) percentage of patients who take levothyroxine are on doses higher than expected for their body weight. This study also suggests that patients on high replacement doses of levothyroxine may have an underlying absorption problem that should be evaluated. Finally, this study also shows that these patients did not have high levels of thyroid hormone in their blood in spite of the high doses taken.

— Jessie Block-Galarza, MD

ATA THYROID BROCHURE LINKS

Hypothyroidism: <http://www.thyroid.org/what-is-hypothyroidism>

Thyroid Hormone Treatment: <http://www.thyroid.org/thyroid-hormone-treatment>

ABBREVIATIONS & DEFINITIONS

Hypothyroidism: a condition where the thyroid gland is underactive and doesn't produce enough thyroid hormone. Treatment requires taking thyroid hormone pills.

Levothyroxine (T₄): the major hormone produced by the thyroid gland and available in pill form as Synthroid™, Levoxyl™, Tyrosint™ and generic preparations.



HYPOTHYROIDISM, continued

Celiac disease: an autoimmune disorder of the small intestine that occurs in genetically predisposed people of all ages from middle infancy onward.

Autoimmune disorders: A diverse group of disorders that are caused by antibodies that get confused and attack the body's own tissues. The disorder depends on what tissue the antibodies attack. Graves' disease and

Hashimoto's thyroiditis are examples of autoimmune thyroid disease. Other Autoimmune disorders include: type 1 diabetes mellitus, Addison's disease (adrenal insufficiency), vitiligo (loss of pigment of some areas of the skin), systemic lupus erythematosus, pernicious anemia (B12 deficiency), celiac disease, inflammatory bowel disease, myasthenia gravis, multiple sclerosis, and rheumatoid arthritis.



HYPOTHYROIDISM IN PREGNANCY

How often does screening detect overt hypothyroidism during pregnancy?

BACKGROUND

Thyroid hormone in the mother during pregnancy is essential for normal brain development in the baby. Overt hypothyroidism (both low T₄ levels and high TSH levels) occurring in the mother and not adequately treated during pregnancy is associated with developmental delay and other brain issues in the baby. While there are multiple international clinical practice guidelines providing differing recommendations on thyroid disease screening and treatment in pregnancy, treatment of overt hypothyroidism whenever discovered is strongly recommended. The investigators in this study examined how often pregnant women without risk factors or symptoms of thyroid disease were found to have overt hypothyroidism on blood test screening in early pregnancy. Specifically, they wanted to determine if a sufficient number of women would be detected by screening and whether routinely screening all pregnant women for thyroid disease is warranted.

THE FULL ARTICLE TITLE

Pop V et al. The attitude toward hypothyroidism during early gestation: time for a change of mind? *Thyroid*. 2014 Oct;24(10):1541-6. doi: 10.1089/thy.2014.0007. Epub 2014 Aug 7.

SUMMARY OF THE STUDY

Investigators in this study examined how often pregnant women without symptoms of thyroid disease, who underwent screening with TSH testing were found to have overt hypothyroidism. Overt hypothyroidism was defined by a TSH measurement of > 10 mIU/L and the blood test was measured at 10 to 12 weeks of pregnancy in the same region of the Netherlands. All women were white. Data was combined from 1354 women screened in 2002, 1602 women screened in 2005, and 1243 women screened in 2013, all from the same region. Upon combining data from three time periods in the same region of the Netherlands, the authors found that 26 women out of a total of 4199 (0.62%) had overt hypothyroidism.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Based on this study, the authors estimated that the total number of women with overt hypothyroidism who would not be detected universal thyroid hormone screening in all pregnancies would be as follows: 1000 in the Netherlands, 4500 in the United Kingdom, and 25,000 in the United States. These data suggest that these numbers of potentially missed cases of overt hypothyroidism would potentially justify universal screening of all pregnant women with thyroid blood testing in early pregnancy.

The topic of universal screening of all women is complex and will likely continue to be actively discussed among expert panels. Current recommendations advise women with current or prior thyroid disease or those at risk for thyroid disease who are contemplating pregnancy or pregnant should talk to thyroid hormone testing. Further, TSH testing is reasonable in the following situations: age older than 30 years, prior history of abnormal thyroid function, prior head and neck radiation, family history of thyroid disease, symptoms of under- or over-active thyroid, enlarged thyroid, known positive Thyroid Peroxidase Antibody (marker of autoimmune thyroid disease), history of infertility, history of miscarriage or preterm delivery, iodine deficiency in the population, use of certain medications affecting thyroid function and morbid obesity. As always, women considering pregnancy or those who are pregnant should discuss with their physicians about whether thyroid hormone testing may be right for their situation.

— Anna Sawka, MD

ATA THYROID BROCHURE LINKS

Thyroid and Pregnancy: <http://www.thyroid.org/thyroid-disease-and-pregnancy>

Hypothyroidism: <http://www.thyroid.org/what-is-hypothyroidism>



HYPOTHYROIDISM IN PREGNANCY, continued

ABBREVIATIONS & DEFINITIONS

Hypothyroidism: a condition where the thyroid gland is underactive and doesn't produce enough thyroid hormone. Treatment requires taking thyroid hormone pills.

Overt Hypothyroidism: clear hypothyroidism an increased TSH and a decreased T₄ level. All patients with overt hypothyroidism are usually treated with thyroid hormone pills.

TSH: thyroid stimulating hormone — produced by the pituitary gland that regulates thyroid function; also the best screening test to determine if the thyroid is functioning normally.

Thyroid Peroxidase Antibodies: these are antibodies that attack the thyroid instead of bacteria and viruses, they are a marker for autoimmune thyroid disease, which is the main underlying cause for hypothyroidism and hyperthyroidism in the United States.

Autoimmune thyroid disease: a group of disorders that are caused by antibodies that get confused and attack the thyroid. These antibodies can either turn on the thyroid (Graves' disease, hyperthyroidism) or turn it off (Hashimoto's thyroiditis, hypothyroidism).



THYROID NODULES AND CANCER

Next-generation sequencing molecular marker assay results in accurate diagnosis of cancer in thyroid nodules with indeterminate thyroid biopsy results

BACKGROUND

Thyroid nodules are common and may be seen in up to 50% of the population. The concern about any thyroid nodule is whether it is cancerous. Thyroid biopsy is often performed to determine whether nodules are cancerous or benign. While a benign vs cancer diagnosis is the usual result, ~10–15% of biopsy results are indeterminate with a diagnosis of a follicular neoplasm or suspicious for follicular neoplasm. These thyroid nodules have a cancer risk of approximately 15% to 30%. Current practice guidelines recommend thyroid surgery for patients in this category. However, testing for cancer gene mutations (molecular markers) in indeterminate thyroid biopsy specimens has become more common and may help determine which patients are more likely to have a non-cancerous nodule that does not require surgery. Next generation molecular marker testing has expanded the number of cancer genes examined and preliminary results suggest that this newer testing may be better able to identify thyroid cancers prior to surgery. This study assessed a next generation molecular marker assay in biopsy samples classified as follicular neoplasm or suspicious for follicular neoplasm.

THE FULL ARTICLE TITLE

Nikiforov YE et al. Highly accurate diagnosis of cancer in thyroid nodules with follicular neoplasm/suspicious for a follicular neoplasm cytology by ThyroSeq v2 next-generation sequencing assay. *Cancer*. September 10, 2014 [Epub ahead of print].

SUMMARY OF THE STUDY

Thyroid biopsy samples from 143 thyroid nodules with a diagnosis of follicular neoplasm or suspicious for follicular neoplasm were divided into two groups. The first group consisted of 91 samples (December 2012 to September 2013) and molecular testing was done after surgery was

already completed. The second group consisted of 52 samples (October 2013 to May 2014) and tested prior to surgery. Next generation molecular marker testing was performed.

In the first group, out of the 64 samples that were negative on molecular testing, 62 were identified as benign and 2 as cancer. Out of the 27 samples that were positive for cancer gene mutations, 23 were cancer and 6 were benign. In the second group, among 37 samples that were negative on molecular testing, 35 were identified as benign and 2 as cancer. Out of the 15 samples that were positive for cancer gene mutations, 12 were cancer and 3 were benign. Adding all the results together, next generation molecular marker testing correctly identified 92% of biopsy samples as cancer or benign.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The results of this study indicate that a next-generation molecular marker significantly improves the diagnosis of cancer in thyroid nodules found to be a follicular neoplasm or suspicious for follicular neoplasm on thyroid biopsy. The method appears to be highly accurate (92%) in classifying these thyroid nodules into cancer or benign. These data suggest that this new molecular marker assay will be helpful in managing patients with a thyroid nodule that has an indeterminate biopsy result.

— Maria Papaleontiou, MD

ATA THYROID BROCHURE LINKS

Thyroid Nodules: <http://www.thyroid.org/what-are-thyroid-nodules>

Thyroid cancer: <http://www.thyroid.org/cancer-of-the-thyroid-gland>



THYROID NODULES AND CANCER, continued

ABBREVIATIONS & DEFINITIONS

Thyroid fine needle aspiration biopsy (FNAB): A simple procedure that is done in the doctor's office to determine if a thyroid nodule is benign (non-cancerous) or cancer. The doctor uses a very thin needle to withdraw cells from the thyroid nodule. Patients usually return home or to work after the biopsy without any ill effects.

Suspicious thyroid biopsy: This happens when there are atypical cytological features suggestive of, but not diagnostic for malignancy. Surgical removal of the nodule is required for a definitive diagnosis.

Thyroidectomy: Surgery to remove the entire thyroid gland. When the entire thyroid is removed it is termed a total thyroidectomy. When less is removed, such as in removal of a lobe, it is termed a partial thyroidectomy.

Molecular markers: Genes and microRNAs that are expressed in benign or cancerous cells. Molecular

markers can be used in thyroid biopsy specimens to either to diagnose cancer or to determine that the nodule is benign.

Genes: A molecular unit of heredity of a living organism. Living beings depend on genes, as they code for all proteins and RNA chains that have functions in a cell. Genes hold the information to build and maintain an organism's cells and pass genetic traits to offspring.

Mutation: A permanent change in one of the genes.

Oncogenic mutation: A mutation that leads to the development of cancer.

Genetic marker: A gene or DNA sequence with a known location on a chromosome that can be used to identify specific traits.



THYROID CANCER

Adequate surgery for low-risk papillary thyroid cancer—the debate rages on

BACKGROUND

The initial treatment for thyroid cancer is surgery. According to expert guidelines, a total thyroidectomy, or removal of the entire thyroid gland, is recommended for papillary thyroid cancer greater than 1 cm in size. However, the consideration of risk of recurrence of the thyroid cancer is now playing a more prominent role in planning the management of thyroid cancer. Low risk thyroid cancer patients include those with smaller single cancers and those without spread of the cancer to the lymph nodes in the neck. For a while, there has been debate over the extent of surgery needed for low risk papillary thyroid cancer, with some surgeons recommending only lobectomy (removal of the thyroid lobe containing the cancer). Indeed, recent reports have questioned the need for total thyroidectomy for cancers smaller than 4 cm. This study examined the risk of survival in patients with small thyroid cancers that were treated total thyroidectomy vs lobectomy.

THE FULL ARTICLE TITLE

Adam MA et al. Extent of surgery for papillary thyroid cancer is not associated with survival: an analysis of 61,775 patients. *Ann Surg* 2014;260:601-7.

SUMMARY OF THE STUDY

The National Cancer Database was searched for adult patients who underwent thyroid surgery for papillary thyroid cancers between 1 to 4 cm in size between the years 1998 and 2006. Patients with aggressive cancer types were not included in the study. Patients who underwent lobectomy were compared with those who underwent total thyroidectomy. The relationship between overall

survival and the extent of surgery was evaluated using statistical methods.

A total of 54,926 patients (89%) had total thyroidectomy and 6849 (11%) had lobectomy. Overall survival was not statistically different between the groups. Independent predictors of worse survival included older age, male sex, black race, lower income, larger tumor size and presence of spread of the cancer to lymph node or outside the neck. No overall survival advantage was seen based on the extent of thyroid surgery for papillary thyroid cancers between 1 and 4 cm in size.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Patients with low risk papillary thyroid cancer have an excellent prognosis overall. While this study does look at survival it does not address recurrent cancer and has other limitations. The size of the cancer is only one factor in the consideration of the proper treatment for any particular case. Patients should discuss the specifics of their situation with their endocrinologist and surgeon to understand what is the appropriate approach for their situation. If multiple options are available, the risks and benefits of each approach should be discussed.

— Ronald B. Kuppersmith, MD, FACS

ATA THYROID BROCHURE LINKS

Thyroid cancer: <http://www.thyroid.org/cancer-of-the-thyroid-gland>

Thyroid Surgery: <http://thyroid.org/patients/patient-brochures/surgery.html>

ABBREVIATIONS & DEFINITIONS

Thyroidectomy: surgery to remove the entire thyroid gland. When the entire thyroid is removed it is termed a total thyroidectomy. When less is removed, such as in removal of a lobe, it is termed a partial thyroidectomy.

Total thyroidectomy: surgery to remove the entire thyroid gland

Lobectomy: surgery to remove one lobe of the thyroid.

Lymph node: bean-shaped organ that plays a role in removing what the body considers harmful, such as infections and cancer cells.

Papillary thyroid cancer: the most common type of thyroid cancer.



ATA Alliance for Thyroid Patient Education

GOAL

The goal of our organizations is to provide accurate and reliable information for patients about the diagnosis, evaluation and treatment of thyroid diseases.

We look forward to future collaborations and continuing to work together towards the improvement of thyroid education and resources for patients.

WHO WE ARE (in alphabetical order)

- **American Thyroid Association**
- **Bite Me Cancer**
- **Graves' Disease and Thyroid Foundation**
- **Light of Life Foundation**
- **ThyCa: Thyroid Cancer Survivors' Association, Inc.**
- **Thyroid Cancer Canada**
- **Thyroid Federation International**

AMERICAN THYROID ASSOCIATION

www.thyroid.org

ATA Patient Resources: <http://www.thyroid.org/patients/>

Find a Thyroid Specialist: www.thyroid.org

Phone (toll-free): 1-800-THYROID

e-mail: thyroid@thyroid.org

ATA Mission: The ATA leads in promoting thyroid health and understanding thyroid biology.

ATA Vision: The ATA is the leading organization focused on thyroid biology and the prevention and treatment of thyroid disorders through excellence and innovation in research, clinical care, education, and public health.

ATA Values: The ATA values scientific inquiry, clinical excellence, public service, education, collaboration, and collegiality.

To further our mission, vision and values the ATA sponsors "Friends of the ATA" online to advance the information provided to patients and the public such as this publication, *Clinical Thyroidology for the Public*. We welcome your support.

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ThyCa: Thyroid Cancer
Survivors' Association, Inc.SM
www.thyca.org





ATA Alliance for Thyroid Patient Education

Continued...

BITE ME CANCER

<http://www.bitemecancer.org>

Bite Me Cancer was formed as a nonprofit foundation in September, 2010, by Nikki Ferraro, who was 17-years old at the time. Nikki was diagnosed with a rare form of thyroid cancer in April 2010 when she was a junior at Chantilly HS in Virginia. Nikki was determined to lead a Relay for Life team just two weeks after her diagnosis. She named the team Bite Me Cancer and experienced immediate success. When Nikki decided to create a foundation a few months later, she wanted to continue the legacy of her team name and thus her foundation became the Bite Me Cancer Foundation.

e-mail: info@bitemecancer.org

GRAVES' DISEASE AND THYROID FOUNDATION

www.gdatf.org

Phone (toll-free): 1-877-NGDF-123 or 643-3123

e-mail: Gravesdiseasefd@gmail.com

Founded in 1990, the Graves' Disease Foundation offers support and resources to Graves' disease patients, their families, and health care professionals. Their mission is to find the cause of and the cure for Graves' thyroid disease through research, to improve the quality of life for persons with Graves' disease and their caregivers and to educate persons with Graves' disease, their caregivers, healthcare professionals, and the general public about Graves' disease and its treatment. The web site features a monitored bulletin board.

LIGHT OF LIFE FOUNDATION

www.checkyourneck.com

email: info@checkyourneck.com

The Light of Life Foundation, founded in 1997, is a nonprofit organization that strives to improve the quality of life for thyroid cancer patients, educate the public and professionals about thyroid cancer, and promote research and development to improve thyroid cancer care.

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THYCA: THYROID CANCER SURVIVORS' ASSOCIATION, INC.

www.thyca.org

Phone (toll-free): 877 588-7904

e-mail: thyca@thyca.org

ThyCa: Thyroid Cancer Survivors' Association, Inc., founded in 1995, is an international nonprofit organization, guided by a medical advisory council of renowned thyroid cancer specialists, offering support and information to thyroid cancer survivors, families, and health care professionals worldwide.

THYROID CANCER CANADA

www.thyroidcancercanada.org

Phone: 416-487-8267

Fax: 416-487-0601

e-mail: info@thyroidcancercanada.org

Thyroid Cancer Canada is a non-profit organization founded in 2000. The organization works towards creating an environment in which people who are dealing with thyroid cancer, especially the newly diagnosed, are met with support and information. Their goals & objectives include facilitating communication among thyroid cancer patients, providing credible information about the disease, providing emotional support, and assisting thyroid cancer patients with voicing their needs to health care professionals and those who are responsible for health care policy.

THYROID FEDERATION INTERNATIONAL

<http://www.thyroid-fed.org/>

e-mail: tfi@thyroid-fed.org

Thyroid Federation International (TFI) was established in Toronto in 1995. Thyroid Federation International aims to work for the benefit of those affected by thyroid disorders throughout the world by providing a network of patient support organizations.



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Survivors' Association, Inc.™
www.thyca.org

